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APPLICATION NO	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO	CONFIRMATION NO
09 834,501	04 12 2001	Gerhard Schneider	5196 ETCH CONE JBI	5799

32588 7590 08 20 2002

APPLIED MATERIALS, INC.  
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EXAMINER

ALEJANDRO MULERO, LUZ L

ART UNIT PAPER NUMBER

1763

DATE MAILED: 08 20 2002

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Please find below and/or attached an Office communication concerning this application or proceeding.

### Office Action Summary

Application No.

09/834,501

Applicant(s)

SCHNEIDER ET AL.

Examiner

Luz L. Alejandro

Art Unit

1763

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

#### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

#### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3 6) ☐ Other.

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "sufficient" in claim 1-line 7 is a relative term which renders the claim indefinite. The term "sufficient" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

The term "substantially" in claim 1-line 11; claim 2, lines 2 and 3; claim 4-line 2; claim 5-line 2; claim 12-lines 2 and 12; claim 16, lines 2, 10, 17; and col. 17-line 3; is a relative term which renders the claim indefinite. The term "sufficient" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

The term "sufficiently" in claim 12-line 10; and claim 16, lines 8 and 16; is a relative term which renders the claim indefinite. The term "sufficient" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

In claim 9-lines 1-2, the word "journals" in the context of the phrase "wherein internal cooling journals" is not understood.

Claim 12 recites the limitation "the plural article support" in lines 5-6. There is insufficient antecedent basis for this limitation in the claim. It is suggested to make the word "support" plural.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 4-5, 7, 9, 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Yamazaki et al., U.S. Patent 5,302,226.

Yamazaki et al. shows the invention as claimed including a chamber for processing an article 50-2, the chamber comprising: a chamber body having a bottom wall with a pumping port formed therein (see figs. 4 and 5); an article support 43, 73 disposed inside the chamber body and comprising an upper surface, and a lower surface facing the bottom wall; wherein the article support has a first width to support the article on the upper surface; and a stem extending from the bottom wall of the chamber body to the lower surface of the articles support, the stem supporting the article support (see figs. 4 and 5); wherein the stem has a second width smaller than the first width (see figs. 4 and 5).

With respect to claim 4, note that the article support is circular (see col. 5, line 50), having a center, and wherein the stem connects to the article support at a position offset from the center (see figs. 4 and 5). Regarding claim 5, note that the pumping port is located completely beneath the article support (see figs. 4 and 5). Additionally, with respect to claims 7 and 11, note that the stem is adapted to couple RF energy to the article support and that alternatively DC potential may be used/supplied (see col. 7, lines 50-55). Furthermore, note that the apparatus of Yamazaki et al. further comprises internal cooling journals formed in the article support supplied with coolant via the stem (see col. 6, lines 51-55 and col. 7, lines 58-62).

Claims 1, 4, 6, and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Cheng et al., U.S. Patent 5,304,248.

Cheng et al. shows the invention as claimed including a chamber for processing an article 10, the chamber comprising: a chamber body having a bottom wall with a pumping port formed therein (see figs. 2 and 5); an article support 40 disposed inside the chamber body and comprising an upper surface 42, and a lower surface 41 facing the bottom wall; wherein the article support has a first width to support the article on the upper surface; and a stem extending from the bottom wall of the chamber body to the lower surface of the articles support, the stem supporting the article support (see figs. 2 and 5), wherein the stem has a second width smaller than the first width (see figs. 2 and 5).

With respect to claim 4, note that the article support is circular (see col. 4, lines 21-22), having a center, and wherein the stem connects to the article support at a position offset from the center (see figs. 2 and 5). Regarding claims 6 and 10, note that the stem of the apparatus of Cheng et al. comprises bellows 48 disposed between the article support and the bottom wall of the processing chamber (see col. 4, lines 29-35 and fig. 2).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 2-3, 12-13 and 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki et al., U.S. Patent 5,302,226.

With respect to claims 12-13 and 16, Yamazaki et al. is applied as above but does not expressly disclose a plurality of stems, each plurality of stems supporting a respective one of a plurality of article supports. However, duplication of parts was held to have been obvious. *St. Regis Paper Co. v. Beemis Co. Inc.* 193 USPQ 8, 11 (1977); *In re Harza* 124 USPQ 378 (CCPA 1960). Furthermore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Yamazaki et al. as to further comprise plurality of stems supporting a plurality of article supports as claimed, because in such a way a plurality of articles can be processed at the same time and therefore the processing time is reduce and the throughput of the apparatus is increase.

Regarding claims 2-3 and 17, Yamazaki et al. does not expressly disclose that the stem connects to the article support at the center, however rearrangement of parts was held to have been obvious. *In re Japikse* 86 USPQ 70 (CCPA 1950).

Claims 6 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki et al., U.S. Patent 5,302,226 in view of Cheng et al., U.S. Patent 5,304,248.

Yamazaki et al. is applied as above but does not expressly disclose that the stem of the apparatus further comprises bellows. Cheng et al. discloses an apparatus comprising a stem for supporting an article support 40 and comprising bellows 48 disposed between the article support and the bottom wall of the processing chamber (see col. 4, lines 29-35 and fig. 2). In view of this disclosure, it would have been obvious to one having ordinary skill in the art at the time the invention was made to

modify the apparatus of Yamazaki et al. as to comprise a stem comprising bellows to permit vertical movement of the article support.

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki et al., U.S. Patent 5,302,226 in view of Turner et al., U.S. Patent 5,509,464.

Yamazaki et al. is applied as above but does not expressly disclose that the article support is supplied with helium gas via the stem. Turner et al. discloses an apparatus in which a coolant medium, such as helium, is supplied to the article support through the stem (see col. 4, lines 44-59). In view of this disclosure, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Yamazaki et al. as to further supply helium gas to the article support in order to provide means for improving heat conduction from the substrate to the cooled pedestal.

Claims 14 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki et al., U.S. Patent 5,302,226 as applied to claims 2-3, 12-13 and 16-17 above, and further in view of Turner et al., U.S. Patent 5,509,464.

Yamazaki et al. is applied as above but does not expressly disclose that the article support is supplied with helium gas via the stem. Turner et al. discloses an apparatus in which a coolant medium, such as helium, is supplied to the article support through the stem (see col. 4, lines 44-59). In view of this disclosure, it would have been obvious to one having ordinary skill in the art at the time the invention was made to



modify the apparatus of Yamazaki et al. as to further supply helium gas to the article support in order to provide means for improving heat conduction from the substrate to the cooled pedestal.

Claims 15 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki et al., U.S. Patent 5,302,226 as applied to claims 2-3, 12-13 and 16-17 above, and further in view of Cheng et al., U.S. Patent 5,304,248.

Yamazaki et al. is applied as above but does not expressly disclose that the stem of the apparatus further comprises bellows. Cheng et al. discloses an apparatus comprising a stem for supporting an article support 40 and comprising bellows 48 disposed between the article support and the bottom wall of the processing chamber (see col. 4, lines 29-35 and fig. 2). In view of this disclosure, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Yamazaki et al. as to comprise a stem comprising bellows to permit vertical movement of the article support.

Claims 2-3, 12, 15-17, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cheng et al., U.S. Patent 5,304,248.

With respect to claims 12, 15-16 and 19, Cheng et al. is applied as above but does not expressly disclose a plurality of stems, each plurality of stems supporting a respective one of a plurality of article supports. However, duplication of parts was held to have been obvious. *St. Regis Paper Co. v. Beemis Co. Inc.* 193 USPQ 8, 11 (1977);

*In re Harza* 124 USPQ 378 (CCPA 1960). Furthermore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Cheng et al. as to further comprise plurality of stems supporting a plurality of article supports as claimed, because in such a way a plurality of articles can be processed at the same time and therefore the processing time is reduce and the throughput of the apparatus is increase.

Regarding claims 2-3 and 17, Cheng et al. does not expressly disclose that the stem connects to the article support at the center, however rearrangement of parts was held to have been obvious. *In re Japikse* 86 USPQ 70 (CCPA 1950).

Claims 1-6, 10-13, 15-17 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aruga et al., EP 0 628 644 A2 in view of Hongoh et al., U.S. Patent 6,358,324 B1.

Aruga et al. shows the invention substantially as claimed including a chamber 31 for processing an article 35, the chamber comprising: an article support 39 disposed inside the chamber body and comprising an upper surface, and a lower surface facing the bottom wall; wherein the article support has a first width to support the article on the upper surface; and a stem extending from the bottom wall of the chamber body to the lower surface of the articles support, the stem supporting the article support (see fig. 6 and the abstract), wherein the stem has a second width smaller than the first width and wherein the stem connects to the article support at the center (see fig. 6 ad its description).

Aruga et al. does not expressly disclose that the pumping port is formed in the bottom wall of the chamber. Hongoh et al. discloses a plasma apparatus in which a stem is use for supporting the substrate support and in which the pumping port is located in the bottom wall of the chamber and beneath the article support in order to evacuate the entire process chamber uniformly and maintained a uniform plasma density in the process chamber (see fig. 2 and col. 7, lines 22-30). Therefore, in view of this disclosure it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Aruga et al. as to locate the pumping port in the bottom wall of the process chamber in order to evacuate the entire process chamber uniformly and maintained a uniform plasma density in the process chamber.

With respect to claims 6, 10, 15, and 19 note that Aruga et al. apparatus further comprises bellows 37 (see fig. 6). Regarding claim 11, note that the stem is adapted to couple RF energy from RF power source 75 to the article support through line 87 (see figs. 1 and 6, and their descriptions). Additionally, with respect to claims 12 and 16, Aruga et al. and Hongoh et al. are applied as above but does not expressly disclose a plurality of stems, each plurality of stems supporting a respective one of a plurality of article supports. However, duplication of parts was held to have been obvious. *St. Regis Paper Co. v. Beemis Co. Inc.* 193 USPQ 8, 11 (1977); *In re Harza* 124 USPQ 378 (CCPA 1960). Furthermore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Aruga et al. modified by Hongoh et al. as to further comprise plurality of stems supporting a plurality

of article supports as claimed, because in such a way a plurality of articles can be processed at the same time and therefore the processing time is reduce and the throughput of the apparatus is increase. Furthermore, regarding claims 4-5 , Aruga et al. and Hongoh et al. do not expressly disclose that the stem connects to the article support at a position offset from the center, however rearrangement of parts was held to have been obvious. *In re Japikse* 86 USPQ 70 (CCPA 1950).

Claims 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aruga et al., EP 0 628 644 A2 in view of Hongoh et al., U.S. Patent 6,358,324 B1, as applied to claims 1-3, 6, 10-11 above, and further in view of Turner et al., U.S. Patent 5,509,464.

Aruga et al. and Hongoh et al. are applied as above but do not expressly disclose that the article support is supplied with helium gas via the stem. Turner et al. discloses an apparatus in which a coolant medium, such as helium, is supplied to the article support through the stem (see col. 4, lines 44-59). In view of this disclosure, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Aruga et al. modified by Hongoh et al. as to further supply helium gas to the article support in order to provide means for improving heat conduction from the substrate to the cooled pedestal.

Claims 7, 14 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aruga et al., EP 0 628 644 A2 in view of Hongoh et al., U.S. Patent 6,358,324 B1,

and further in view of Turner et al., U.S. Patent 5,509,464, as applied to claims 8-9 above, and further in view of Yamazaki et al., U.S. Patent 5,302,226.

Aruga et al., Hongoh et al. and Turner et al. are applied as above but do not expressly disclose that the article support is supplied with a DC potential via the stem. Yamazaki et al. discloses an apparatus in which a DC potential can be supplied via the stem (see col. 7, lines 53-55). In view of this disclosure, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Aruga et al. modified by Hongoh et al. and Turner et al. as to further supply a DC potential to the article support as an alternative voltage means in place of the RF as suggested by Yamazaki et al..

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Luz L. Alejandro whose telephone number is 703-305-4545. The examiner can normally be reached on Monday to Thursday from 7:30 to 6:00.

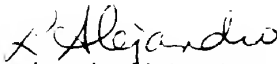
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory L. Mills can be reached on 703-308-1633. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

  
Luz L. Alejandro  
Patent Examiner  
Art Unit 1763

August 16, 2002